Hewlett Packard Corporation
Filton Road, Stoke Gifford
Stoke Gifford
Bristol BS34 8QZ
United Kingdom

Phone +44 117 979 9910
Web www.hp.com

ADT Proposal

Payload Size – Type Restrictions

Introduction

In ADT r01 certain payload types have defined payload sizes. Examples include all of the Link Service frames, the SCSI Command and Transfer Ready frames, and the Request for VHF Polling frame.

The existing text does not describe the behaviour of a port that receives a frame with a length inappropriate for the payload type. Two possibilities exist: payload size too large for given payload type and payload size too small for given payload type.

The existing status values do not cover these two cases. Values 02h and 03h only indicate when the actual number of bytes received does not match the received payload size. Value 87h indicates when the received payload size exceeds the negotiated maximum (see Table 6 in sub-clause 6.5.4 Port login).

HP believes that the lack of specification for this case will lead to interoperability problems.

HP wishes to add text that instructs the frame receiver to ignore extra payload and fill in missing payload upon receiving an illegal payload size for the given payload type. HP believes that this solution provides the maximum amount of forward compatibility consistent with good interoperability.

Current Text

6.3 ADT frame header

An ADT frame header is included in all frame types. The ADT frame header contains the information needed to validate and route the frame to the proper protocol handler. Table 2 defines the ADT Frame Header.

The first byte in the header is a set of bit fields collectively referred to as the Frame Type byte.

Table 2 — ADT frame header

Bit Byte	7	6	5	4	3	2	1	0
0	Reserved	Protocol			PAYLOAD TYPE			
1	X_ORIGIN	EXCHANGE ID			Reserved	FRAME NUMBER		
2 - 3	Payload Size							

The PAYLOAD TYPE field specifies the type of data that can be found in the payload of the frame. See the individual protocol sections for a description of the values in this field.

[…]

The PAYLOAD SIZE field contains a count of byte in the Payload area of the frame. This count does not include the SOF, EOF, ADT Frame Header, Checksum, or Escape bytes within the payload.

6.5.4 Port login

Port Login frames are used to establish link parameters.

[…]

An automation device that receives a frame indicating a new port login exchange that has initiated a port login exchange that is not yet complete, shall discard the frame. If an automation device receives a frame indicating a new port login exchange that is not already participating in a port login negotiation may discard the frame and initiate a new port login exchange. A Data Transfer device that receives a Port Login frame shall abort all open exchanges other than the exchange associated with the Port Login frame.

Table 6 defines the payload of the Port Login Frame.

Detailed Changes to Draft Technical Standard

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The PAYLOAD SIZE field contains a count of byte in the Payload area of the frame. This count does not include the SOF, EOF, ADT Frame Header, Checksum, or Escape bytes within the payload.

Unless otherwise specified in this standard, the receiver of a frame shall not consider it an error if the value of the PAYLOAD SIZE field does not match the specified size for those payload types that have a specified size. If the size of the payload exceeds the specified size, the frame receiver shall ignore the excess payload bytes except with respect to the calculation of the Checksum field. If the size of the payload is less than the specified size, the frame receiver shall assume for each missing field:

1. The most recently received value from a previous payload of the same type, or

2. The default value if no previous payload of the same type has been received. [Question: Should a reset event (SAM-2 5.9.6 and 5.9.7) cause the port to revert to assuming the default value?]

The frame receiver shall not include the assumed values for missing fields when calculating the Checksum field.

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A device that receives a Port Login frame whose payload contains fewer bytes than specified by this standard shall respond with a fully populated Port Login frame.

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